

REMARKS/ARGUMENTS

Responsive to the non-final office action mailed September 18, 2006, Applicants provide the present amendment in connection with a Request for Continued Examination in an effort to more particularly point out the invention. Reconsideration and allowance of the present application in view of the amendments and remarks herein are respectfully requested.

Amendments to the Claims

Applicants have amended independent claims 1 and 26 to more particularly point out the invention. In particular, claims 1 and 26, as amended, recite “each of said EDFA gain portions being configured to provide substantially the same gain as each of the others of said EDFA gain portions” and that each of the Raman gain portions provides “a different associated gain compared to each of the others of said Raman amplifier variable gain portions.” In the claimed configuration, each EDFA “has substantially the same total input power as each of the others of said EDFA gain portions” regardless of the span loss and length associated with the amplifier. Claim 15 has been amended to correct its dependency from claim 6 to claim 1. Support for these amendments may be found throughout the specification, e.g. at paragraphs [00032], [00035], [00036] and [00039]. No new matter has been added.

Objection to the Specification and 35 USC §112

The Examiner has objected to the specification and has rejected claim 15 under 35 USC §112, second paragraph, on the basis that claim 15 depends from cancelled claim 6. Applicants have amended claim 15 to correct its dependency from claim 6 to independent claim 1. Applicants respectfully request that the objection to the specification and rejection of claim 15 under 35 USC §112, second paragraph, be withdrawn upon reconsideration.

35 USC §103

Claims 1-5, 9, 10, 12 and 26-27 have been rejected under 35 USC §103(a) as being unpatentable over Onaka et al. (U.S. Patent No. 6,785,042) in view of Kinoshita (U.S. Patent No. 6,108,123). Applicants respectfully traverse this rejection.

In general, in a system consistent with the claimed invention each of the plurality of Raman assisted EDFA hybrid amplifiers has (1) a Raman amplifier variable gain portion, and (2) an EDFA gain portion. Each of the EDFA portions has *substantially the same gain* as each of the other EDFA gain portions. Moreover, each of the Raman amplifier variable gain portions has a *different associated gain* set so that all of the plurality of EDFA gain portions (e.g. the EDFA gain portions associated with each of hybrid amplifiers 12-1, 12-2...12-N) have substantially the *same input power*, regardless of the span length and loss associated with the amplifier. In this configuration, the system is simplified by providing EDFA portions with substantially the same gain and using the Raman gain portions as preamplifiers for the EDFA gain portions. Each Raman gain portion imparts a different gain so that the input power to each of the separate EDFA portions is substantially the same.

The Examiner has correctly acknowledged that “Onaka differs from the claimed invention in that Onaka does not specifically disclose that the EDFA gain portion of the plurality (sic) hybrid amplifier has *substantially the same total input power* as each of the other EDFA throughout the optical communications link.” Official Action dated January 24, 2007, page 4. Kinoshita does not provide the missing teachings, and does not teach a system wherein “each of said EDFA gain portions being configured to provide *substantially the same gain* as each of the others of said EDFA gain portions” and all the Raman gain portions provide “a *different associated gain* compared to each of the others of said Raman amplifier variable gain portions.”

Kinoshita teaches a system wherein amplifiers operate with a *constant* input power, not the substantially the *same* input power. In particular, and with reference to FIG. 7 of Kinoshita,

The reason why the optical transmitters 8 (#4 and #5) not being operated are intended to output the CW light having no relation to the main signals is to make constant the total power of the WDM signal light to be supplied to each optical repeater 94. Column 9, lines 28-32. (emphasis added).

Kinoshita describes a system where the input and output powers of the amplifiers are constant. The term “constant” does not mean “substantially the same.” Two amplifiers can have constant input power without the input powers being the same. Applicants find nothing in Kinoshita that indicates the input powers to EDFA portions of different Raman assisted EDFA hybrid amplifiers should be made substantially the same regardless of span length or loss by imparting a different gain in associated Raman variable gain portion amplifiers, as claimed. Moreover, Applicants find nothing in the references that teaches or suggests “each of said EDFA gain portions being configured to provide *substantially the same gain* as each of the others of said EDFA gain portions” and that all the Raman gain portions provide “a *different associated gain* compared to each of the others of said Raman amplifier variable gain portions”, as required by amended independent claims 1 and 26.

As such, Applicants respectfully submit that claims 1 and 26 could not have been obvious in view of Onaka and Kinoshita at the time the invention was made. Claims 2–5, 9–10, 12, and 27 depend directly or indirectly from claim 1 or 26 and are allowable by virtue of their dependency as well as for their own limitations. Applicants respectfully request, therefore, that the rejection of claims 1–5, 9, 10, 12 and 26–27 under 35 USC §103(a) as being unpatentable over Onaka et al. in view of Kinoshita be withdrawn upon reconsideration.

In light of the foregoing remarks, it is believed that all of the presently pending claims are in a condition for allowance. Entry of the present amendment and allowance of the application is respectfully requested. In the event the Examiner deems personal contact desirable in disposition of this application, the Examiner is respectfully requested to call the undersigned attorney at (603) 668-6560.

No additional fees are believed to be due. In the event there are any fee deficiencies, please charge them (or credit any overpayment) to our Deposit Account No. 50-2121.

Respectfully submitted,

/Donald J. Perreault/

Donald J. Perreault, Reg. No. 40,126
Attorney for Applicants
GROSSMAN, TUCKER, PERREAULT
& PFLEGER, PLLC
55 South Commercial Street
Manchester, NH 03101
Ph: 603-668-6560
Fx: 603-668-2970